

EDULEARN¹⁵

7TH INTERNATIONAL CONFERENCE
ON EDUCATION AND NEW LEARNING
TECHNOLOGIES

BARCELONA (SPAIN)
6TH - 8TH OF JULY, 2015



CONFERENCE PROCEEDINGS



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KEEPING PACE WITH INNOVATION: BUILDING A DIGITAL ASSET REPOSITORY FOR EMERGING TECHNOLOGIES	421
<i>C. McFadden, J. Higdon-Topaz</i>	
MORAL JUDGMENT OF SOME FORMS OF ACADEMIC PLAGIARISM: UNIVERSITY UNDERGRADUATE STUDENTS' OPINION	425
<i>D. Tep Chel, P.J. Canto-Herrera, M. Morey-López, R. Comas-Forgas</i>	
LEARNING IN BLENDED SPACES; INFORMATION SOCIETY STRATEGY	431
<i>E. Mohammadlou, A. Moghaddam</i>	
PROBLEMATISED HISTORY PEDAGOGY IN INITIAL TEACHER EDUCATION: A RESEARCH CASE OF DISTURBANCE IN NEW ZEALAND'S SECONDARY SCHOOLING CURRICULUM	441
<i>P. Hunter</i>	
EXPERIENCES AND EXPECTATIONS OF ONLINE TEACHER FEEDBACK	451
<i>C. Savvidou</i>	
AMELIORATION ON STUDENTS PERFORMANCE USING GAMIFICATION, WITH A NEW IN CLOUD APPLICATION OF IN CLASSROOM RESPONSE FOR MOBILE DEVICES WITH INTERNET ACCESS	459
<i>J. del Pino, P. Moyano, F.J. Mourin, M.T. Frejo, M.J. Diaz, M. Lobo, J. Garcia, M.A. Capo, M.J. Anadon</i>	
FORENSIC SOFTWARE WITH A GENOMIC LIBRARY TO DIAGNOSE THE CAUSE OF INTOXICATION IN PRACTICAL CLASSES	461
<i>J. del Pino, P. Moyano, F.J. Mourin, M.T. Frejo, M.J. Diaz, J. Garcia, M. Lobo, M.A. Capo, M.J. Anadon</i>	
THE DEFICIENCIES OF CUT'S FIRST YEAR STUDENTS IN ALGEBRAIC LINEAR FUNCTIONS AND GRAPHS TO SOLVE KINEMATICS EQUATIONS AND GRAPHS	462
<i>I. Phage</i>	
APPROACH TO THE PROFESSION OF CIVIL ENGINEERING BY PHYSICAL SCALE MODELS	463
<i>J. Arias-Trujillo, P. Duran-Barroso, M. Candel, S. Fernández-Rodríguez</i>	
AN EVALUATION OF A BICYCLE ANALOGY IN AMELIORATING ALTERNATIVE AND CONCEPTUAL DIFFICULTIES IN ELECTRIC CIRCUITS AMONGST FIRST YEAR UNIVERSITY STUDENTS	469
<i>M. Rankhumise</i>	
THE NEED FOR A TRANSFORMATIVE EDUCATIONAL LEADERSHIP	476
<i>H. Osieja</i>	
TANGRAM QUESTS: A TABLET ADVENTURE GAME ASSISTING CHILDREN WITH HIGH FUNCTIONING AUTISM TO ENHANCE THEIR COMMUNICATIVE AND SOCIAL SKILLS	481
<i>K. Malisova, K. Mania, S. Moysiadou, E. Kourkoutas</i>	
TEACHING CHEMISTRY USING PRACTICAL PROJECTS; BIODEGRADABLE POLYMER FILMS FROM PECTIN	488
<i>C. Rius-Alonso, L. Olivares de Lachica, N. Mendoza Madriagal, N. Pardo Vercoña, A. Rojas López, M. Guraieb Pérez de la Riva, Y. González Quezada, C. Gallardo-Aguilar, A. Alatorre-Almeida</i>	
A MENTORING STRATEGY TO EQUALIZE UNDERGRADUATE'S GRAPHICALLY CAPABILITY AT CIVIL ENGINEERING DEGREE	496
<i>R. Porras, J. Arias-Trujillo</i>	
NATIONAL QUALIFICATIONS FRAMEWORK DEVELOPMENT IN RUSSIA IN LIGHT OF BEST FOREIGN PRACTICE	504
<i>S. Sigova, V. Gurtov, M. Pitukhina</i>	
IMPROVING THE LEARNING EXPERIENCES OF MATHEMATICS OF SOUTH AFRICAN PRIMARY SCHOOL LEARNERS THROUGH MANIPULATIVE ASSISTANCE	509
<i>J. Geldenhuys, K. Dell, D. Levack</i>	
COLLECTIVE INTELLIGENCE IN EDUCATION: A CONTENT ANALYSIS OF PUBLICATIONS IN SELECTED JOURNALS FROM 2010 TO 2015	516
<i>F. Grimon, J.M. Monguet, J. Meza</i>	
THREE INTERACTIVE GAMES TO TEACH PLANT EVOLUTION, BIODIVERSITY, AND DEVELOPMENT	525
<i>A. Grano, M. De Tullio</i>	
THE FOREIGN LANGUAGE READING BRAIN: CONNECTING THE DOTS IN THE AGE OF PAPER AND PIXEL	529
<i>C. Elkabas</i>	

NATIONAL QUALIFICATIONS FRAMEWORK DEVELOPMENT IN RUSSIA IN LIGHT OF BEST FOREIGN PRACTICE

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Abstract

Well-known international reports of the ILO, UN, ETF, OECD emphasize that national qualification frameworks is an important mechanism bridging the gap between labour market and vocational educational services market. Currently NQFs are implemented in more than 100 countries all over the world. Despite certain examples of NQF implementation in some cultural and socio-economic frameworks NQF is still believed to be highly crucial for developing countries. The article deals with some arguments that stress the importance of NQF choice versus dual education what is conditioned on by 2 factors. The first one is an acute necessity to satisfy economy's demand with skilled workforce. The second is an innovative economy development with human resources inclined to lifelong learning. However some experts claim that Russia is losing its scores on international arena. Authors appeal to the best foreign practice analysis dealing with NQF implementation abroad. Constant tracing of new trends, challenges result in new qualifications and programmes development. That is how an applied bachelor was introduced in Australia, the UK, France or recognition of prior learning in Australia. Russia is also introducing applied bachelor degree, a new form of vocational education. By the year 2020 50% of secondary vocational education graduates and 30% of tertiary vocational education graduates will have received applied bachelor degree. It is highly important that NQF would not hinder but facilitate organizational changes within the education process.

Research methodology is based upon the ILO research in 15 countries aimed at NQF design, implementation and evaluation. The ILO research embraces 15 countries including Russia. It is getting obvious that both NQF implementation and evaluation in Russia are unsuccessful. Methods widely applied in the research are comparative analysis and cabinet studies (international and Russian conceptual documents analysis including ILO, UN, ETF, OECD reports).

The research objective is to prove that it is highly necessary to amend legal framework for Russian economy dealing including legal basis of employers qualifications, both NQF development and implementation, occupation outlooks, qualifications certification. NQF development is a collective responsibility of both state and business.

In order to conclude comparative analysis has shown that currently Russia is facing difficulties with NQF development, first of all in terms of practical and organizational issues. To overcome these obstacles is possible due to foreign practice incorporating which help Russia to develop NQF preserving its peculiar traits in competence-based approach implementation. Quite obvious that dual system is much more expensive to implement in Russia because of very weak connections between a state, business and VET. From this point of view, NQF is a good tool for bridging labour market and VET. Moreover, skills projection is considered to be a vital part of NQF development. Thanks to that the NQF helps to solve labour market mismatch. But NQF is to be developed further including normative framework upgrade, sectorial qualifications frameworks development, standards unification.

Keywords: National qualifications framework, VET, legislative development, long life learning, professional standards.

1 INTRODUCTION

What is the demand for skills in both present and perspective periods? What a graduate shall know or do? What experience shall a graduate acquire? What decisions should a graduate take in order to achieve necessary goals? The answer is in the competence-based approach. The Year 2012 was acknowledged as the Year of TVET, Skills & Jobs. Thus, in 2012 the Third International Congress on Skills was organized in Shanghai. It was then decided to compile the report titled «Global Monitoring Report on Education for All (GMR EFA)» [1]. The report issued by the UNESCO was aimed at education for all and its implementation around the world. In countries where young population is increasingly growing, serious problems linked to the skills deficit and low employability arouse. This report provides serious recommendations dealing with effective development of education process,

youth upskilling, productivity growth. Thus the year 2012 became the year of previous initiatives and strategies revisiting what is proved by a number of international conferences around the world – Shanghai[2], Zurich[3], Geneva[4], Nottingham[5], Paris[6], Moscow[7]. It is getting obvious that the issues of soft and hard skills are on the agenda.

2 NATIONAL QUALIFICATIONS FRAMEWORK DEVELOPMENT IN RUSSIA: RECENT TRENDS

Currently Russia is actively involved in competence-based approach and particularly soft and hard skills development. The following conceptual documents are proving the fact:

- Strategy on Innovation development of Russia till 2020 (Innovation Russia – 2020) [8],
- President's decree №899 dated from 7.07.2011 “On prioritized areas of science, technologies and technique in Russia and a list of critical technologies” [9],
- President's Address to the Federal Assembly from 12.11.2009 [10],
- Concept of long-term social-economic development of Russia till 2020 [11].

Much attention is also paid to qualification frameworks development in Russia. Thus, in the President's Order dated from 9 September 2010 (Пп-2663) it is mentioned: «1.a) to provide professional qualification standards development for prioritized areas of modernization and technological development taking into account the best foreign practice » [12]. In the President's Order dated from 30 march 2011 (Пп-3011) we find out: «1.6)...to develop qualification frameworks, containing a set of requirements for specialists in engineering and technical areas corresponding to prioritized areas of modernization ...» [13].

Skills development is seen as a very important part of national qualifications framework (NQF). This approach was implemented originally in the Anglo-Saxon states. Currently NQFs are implemented in 116 countries all over the world. The results of such implementation are very much debatable. *It is widely known that NQF implementation effect is different in different countries and depends upon cultural contexts and various actors motivations.*

NQF in Russia is based upon the Agreement between the Ministry of Science and Education, the Russian Union of Industrialists and Entrepreneurs [14], the European Qualifications Framework, as well as national qualification frameworks of Bologna process countries.

Dual system is known and implemented as an alternative to the NQF on international level. Historically it is being actively developed in Austria, Germany, Switzerland, Nordic Countries. In these countries graduates run an internship for the long period of time in an enterprise or in a company. This internship is partly financed by a company, partly by a state. Mentors services are also paid.

It is worth mentioning that the dual system has also its pros and contras. First of all, it is an expensive process, where financial burden is shared by a state, responsibility is shared by an enterprise. At the same time unemployment rate of graduates is relatively low in these countries. For example, education process in Denmark, Finland, Norway (dual system examples) is 8-9 years on average, in the OECD countries – 5-6 years. This contributes to unemployment duration in Nordic Countries less than 6 months [15], on the OECD countries – 0.7-1.2. In Norway graduates employability is higher that 90%. [16].

Quite obvious that dual system is much more expensive in Russia because of very weak connections between a state, business and VET. However, the recent trends have proved that dual education in Russia is increasingly developing. For example, one of the effective tools of dual education in Russia is considered applied bachelor degree implementation, a new form of vocational education providing alongside with fundamental knowledge a qualification. In accordance with the “Strategy-2020. New model of growth – new social policy” by the year 2020 50% of secondary vocational education graduates and 30% of tertiary vocational education graduates will receive applied bachelor degree.

3 COMPARING RUSSIAN EXPERIENCE WITH THE INTERNATIONAL

The results of the ILO research in 15 countries are aimed at NQF design, implementation and evaluation [17]. The ILO research objects are Australia, Bangladesh, Botswana, the UK, Lithuania, Mauritius, Malaysia, Mexico, New Zealand, Russia, Tunisia, Turkey, Chili, Sri Lanka, Southern Africa (Picture 1).

COUNTRY	DESIGN			IMPLEMENTATION			EVALUATION		
	G	E	W	G	E	W	G	E	W
Australia	●	●	●	●	●	●	● ⁽¹⁾	● ⁽¹⁾	● ⁽¹⁾
Bangladesh	●	◐	○	—	—	—	—	—	—
Botswana	●	●	○	●	○	○	—	—	—
Chile	●	◐	◐	—	—	—	—	—	—
Lithuania	●	◐	◐	—	—	—	—	—	—
Malaysia	●	◐	◐	●	◐	◐	—	—	—
Mauritius	● ⁽²⁾	◐ ⁽²⁾	◐ ⁽²⁾	—	—	—	—	—	—
Mexico	●	●	○	●	○	○	—	—	—
New Zealand	●	◐	○	●	◐	○	●	●	○
Russia	●	●	●	—	—	—	—	—	—
South Africa	●	●	●	●	◐	◐	●	○	○
Sri Lanka	●	◐	◐	●	◐	◐	—	—	—
Tunisia	●	◐	◐	—	—	—	—	—	—
Turkey	● ⁽³⁾	● ⁽³⁾	● ⁽³⁾	—	—	—	—	—	—
UK (England, Wales and Northern Ireland)	●	●	○	●	◐	○	●	○	○
UK (Scotland)	●	◐	◐	●	◐	◐	●	○	○
TOTAL	16			9			5		

Picture 1. NQF design, implementation and evaluation by the example of 15 countries.

NRQ in Russia is being developed since 2005. It is obvious from the Picture 1 that NQF implementation and evaluation in Russia are unsuccessful. The same problem is faced by Turkey, at the same time Australia is the leader in 3 NQF stages - design, implementation and evaluation. Bangladesh, Botswana, Mauritius, Tunisia and Chili may have a chance to outrun Russia in the nearest future.

The NQF in the UK is a very surprising case. This is the country choosing its own way in terms of national qualifications framework and can be characterized by a serious work undergoing.

Thus, in both developed and developing countries the NQF is an important tool supplying labour market with highly qualified staff, innovative economy-with human resources aimed at self-development. *In accordance with recent evaluations Russia is seriously losing its scores at the international level.*

4 NATIONAL QUALIFICATIONS FRAMEOWRK A TOOL FOR BRIDGING LABOUR MARKET AND VET IN RUSSIA?

It is widely considered that national qualifications framework is a good tool for bridging labour market and VET, also in the Russian Federation. It embraces an overall description of different qualification levels, acknowledged on the federal level as well as basic ways to their implementation on the whole territory of Russia.

NQF is a fundamental part of the national system of qualifications in Russia, what is also proved by the "Strategy Russia 2020" [18]. However, it is highly necessary still to perform changes in legislation framework asap such as design and implementation of the NQF, professional standards, occupation and qualification outlooks, qualification certification as well as determine the national qualification system for employees.

However, despite the above-mentioned NQF vague perspectives in Russia, Russian unsuccessful experience in its implementation and evaluation in accordance with the ILO research, so far skills projection is one of the main issues in NQF development Russia. Of course, skills projection demands more diverse resources, including those of time. In this terms first of all skills in hi-tech industries shall be defined. In Russia there are 7 prioritized areas of science, technologies and technique: IT; nanoindustry and new materials; energy efficiency; transport and space systems; biotechnologies;

healthcare; effective management of natural resources. It is also necessary to highlight that the above-mentioned fields correlate tightly with the international trends of innovative development settled on the international economic forum in Davos in 2012 [21].

Recently a large-scale project titled «Hi-tech skills anticipation in Russia» and coordinated by the Ministry of Education and Science of the Russian Federation has been successfully performed. The project implemented by the Budget Monitoring Center at Petrozavodsk State University lasted for 3 years: 2011-2013. Elaborated methodology on skills anticipation embraced 3 strategic foresight-sessions as well as 3 huge surveys of experts, employers, and employees who work in 7 prioritized areas of science, technology, and technique. As a result, the ideology of skills matching based upon projection of soft and hard skills for each of the above-mentioned prioritized areas was developed. After having elaborated skills models for 7 prioritized areas of science, technology, and technique, recommendations for VET were elaborated aimed at skills and NQF development in Russia. The project results are in high demand by the Ministry of Education and Science of the Russian Federation and aimed at both educational programmes amendments and VET updating.

Generally in Russia there is an understanding of NQF development, but not its implementation and evaluation.

5 CONCLUSIONS

Quite obvious that dual system is much more expensive to implement in Russia because of very weak connections between a state, business and VET. From this point of view, NQF is a good tool for bridging labour market and VET. Moreover, skills projection is considered to be a vital part of NQF development. Thanks to that the NQF helps to solve labour market mismatch. But NQF is to be developed further including normative framework upgrade, sectorial qualifications frameworks development, standards unification. This will contribute to the NQF implementation and evaluation in Russia.

However, the NQF perspectives in Russia turn to be vague. The most recent trends have proved that dual education in Russia is increasingly developing. For example, one of the effective tools of dual education in Russia is known as applied bachelor degree, a new form of vocational education providing alongside with fundamental knowledge a qualification. By the year 2020 50% of secondary vocational education graduates and 30% of tertiary vocational education graduates will receive applied bachelor degree.

Generally in Russia there is an understanding of NQF development, but not its implementation and evaluation.

REFERENCES

- [1] Global Monitoring Report on Education for All (GMR EFA)»
- [2] Third International Congress on TVET in Shanghai
- [3] International conference «Policy transfer in vocational skills development revisited» at University of Zurich (Switzerland) / University of Zurich. URL: <http://wfcg.org/event/policy-transfer-in-vocational-skills-development-revisited-september-13-14-2012>
- [4] International workshop “Post-2015 MDGs and EFA: Actors, Agendas and Architecture” in Geneva (Switzerland) / NORRAG. - URL.: <http://www.norrag.org/en/event/archive/2012/September/12/detail/workshop-on-education-and-skills-in-post-2015-mdgs-and-efa-actors-agendas-and-architecture-genev.html>
- [5] International workshop “Youth and Skills: Putting education to work. Challenges and Opportunities for the UK” in Nottingham (UK) / UNESCO. URL: http://www.unesco.org.uk/events/2012_efa_global_monitoring_report_colloquium
- [6] International workshop “Education, the chance for Africa: 10 years of projects for education: in Paris (France)/ NORRAG. URL: <http://www.norrag.org/en/event/archive/2012/November/20/detail/education-the-chance-for-africa.html>
- [7] International workshop «Professional guidance and counseling» at the European Commission in Russia in Moscow: / ETF. - URL

doc.:http://www.etf.europa.eu/web.nsf/pages/In_Moscow_about_career_guidance_and_counseling_EN

- [8] Strategy on Innovation development of Russia till 2020 (Innovation Russia – 2020)
- [9] President's decree №899 dated from 7.07.2011 "On prioritized areas of science, technologies and technique in Russia and a list of critical technologies"
- [10] President's Address to the Federal Assembly from 12.11.2009
- [11] Concept of long-term social-economic development of Russia till 2020
- [12] Strategy Russia 2020 (2011). New model of growth – new social policy. Available at:<http://kommersant.ru/content/pics/doc/doc1753934.pdf> . Accessed on 12.10.2012
- [13] OECD Skills Strategy (2011). Available at:
<http://skills.oecd.org/documents/oecdskillsstrategy.html> . Accessed on 12.10.2012
- [14] Skills for Europe's future: anticipating occupational skill needs» (2009). Available at:http://www.cedefop.europa.eu/EN/Files/5194_en.pdf . Accessed on 12.10.2012
- [15] World Economic Forum (2012): List of 10 emerging technologies. Available at:
<http://www.gizmag.com/world-economic-forum-new-technology-2012/21484/>. Accessed on 30 May, 2012.
- [16] Gurtov V., Kekkonen A., Sigova S., 2012, Crucial occupational skills forecasting: the experience of Russia and European countries. Journal of International Scientific Publications: Educational Alternatives Volume 10, Part 1, pp.16-23.